



“No matter where we live or what we do every day, each of us has a role in preventing suicide. Our actions can make a difference.”

- 2012 National Strategy for Suicide Prevention

Suicide

- A death caused by injuring oneself with the intent to die¹.

Impact in Kansas

- The suicide death rate **increased 75%** from 2001 to 2018².
- 2015-2019, suicide was the **2nd** leading cause of death among people aged 10-44 in Kansas³.
- Between the years 2015 and 2018, an estimated **\$2.81 billion** (2017 USD) total lifetime costs⁴.
- For these same years, an estimated **65,560 years** of potential life lost.

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Definition of suicide from the Centers for Disease Control and Prevention states that suicide is a death caused by injuring oneself with the intent to die.

Suicide impacts families and friends of the lost loved ones; it impacts communities and the entire state.

Between 2001 and 2018, the suicide death rate increased 75%.

From 2015 to 2019, it was the 2nd leading cause of death among Kansans aged 10-44 years old.

For suicide deaths that occurred between the years 2015 and 2018 in Kansas, the estimated cost for medical expenses and work loss totaled about \$2.81 billion

And there was an estimated 65,560 years of potential life lost.

Data Sources

- Morbidity
 - Kansas Hospital Association (KHA) emergency department visits (EDV) and hospitalization databases
 - Non-fatal suicide attempts and intentional self-harm
- Mortality
 - Kansas Violent Death Reporting System

Criteria

- Years:
 - 2015-2018 for mortality
 - 2016-2020 for morbidity
- Age-Adjusted Rates calculations: direct, 2000 U.S. Standard Population

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The first part of this presentation will look at the trends and demographics for those who present to the emergency department and are admitted to the hospital for non-fatal suicide attempts and intentional self-harm. These data came from the Kansas Hospital Association databases for emergency department visits and hospitalizations.

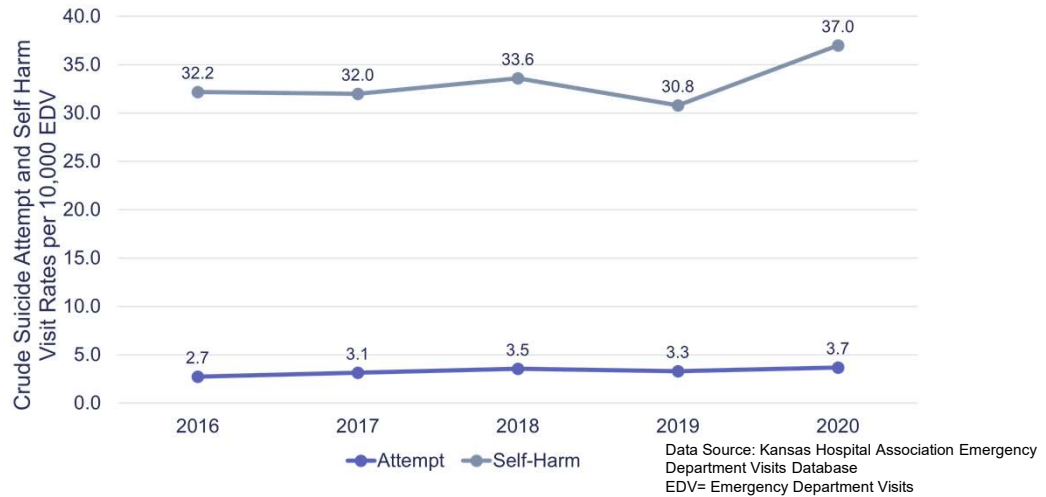
The second part of this presentation, we'll do deeper dive into suicide mortality trends, demographics and circumstances. This mortality data came from the Kansas Violent death reporting system which collects data from death certificates, coroner's reports, law enforcement reports, and toxicology reports.

Emergency department and hospitalization data was analyzed for years 2016-2020 while the mortality data was analyzed for years 2015-2018.

Morbidity - Emergency Department Visits

Trend

Figure 1. Emergency Department Visit Rates (per 10,000 EDV) for Self-Harm and Suicide Attempts, 2016-2020



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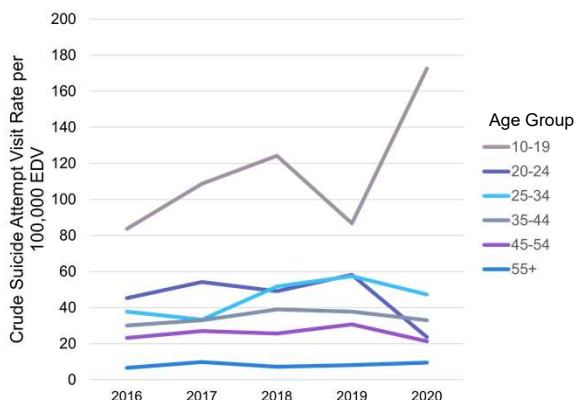
Figure one is looking at crude rates over time: the gray line at the top shows the trend for intentional self-harm. Between 2015 and 2018 there was a slight increase, followed by dip in 2019, and a great increase in 2020.

The purple line at the bottom shows the rate for suicide attempts over this same period and this rate has been steady, with a slight increase from 2.7 to 3.7 per 10,000 emergency department visits.

Morbidity - Emergency Department Visits

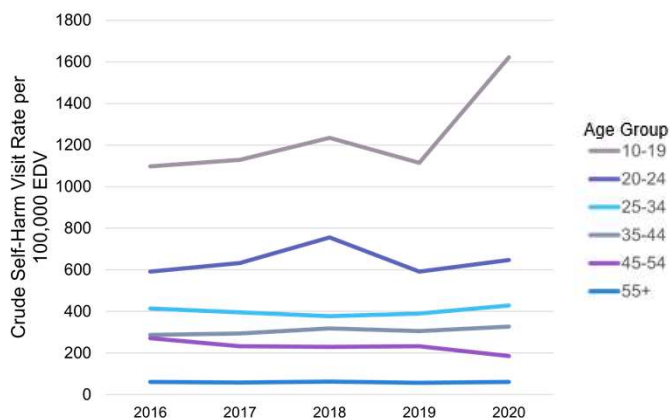
Age

Figure 2. Emergency Department Visit Rates for Suicide Attempts by Age Group, 2016-2020



Data Source: Kansas Hospital Association Emergency Department Visits Database
EDV= Emergency Department Visits

Figure 3. Emergency Department Visit Rates for Self-Harm by Age Group, 2016-2020



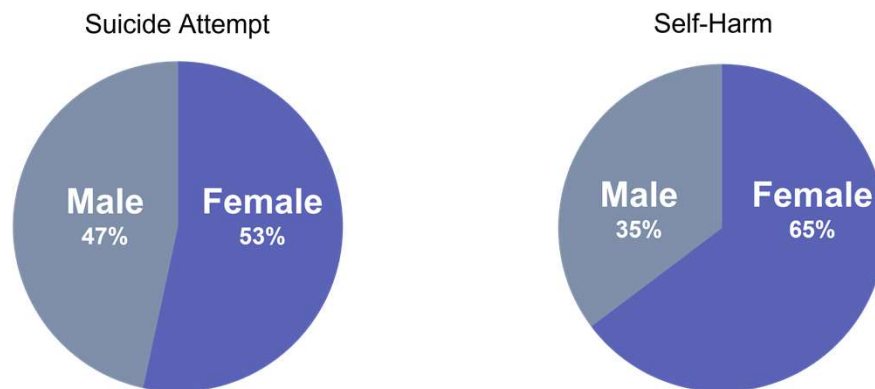
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Figure 2, on the left shows the trend in emergency department visits for suicide attempt by age group, by crude rate per 100,000 EDV. The age group 10-19 had the highest rate consistently over 2016-2020, while the other age groups showed closer rates. Interestingly, the age group 20-24 saw a steep decline from 2019-2020.

Figure 3, on the right shows the trend for self-harm visits by age group. Similar to figure 2, this one shows that the age group with the highest rate was 10-19 that saw a steep incline in 2020.

Sex

Figure 4. Percent of Suicide and Self-Harm Emergency Department Visits by Sex, 2016-2020



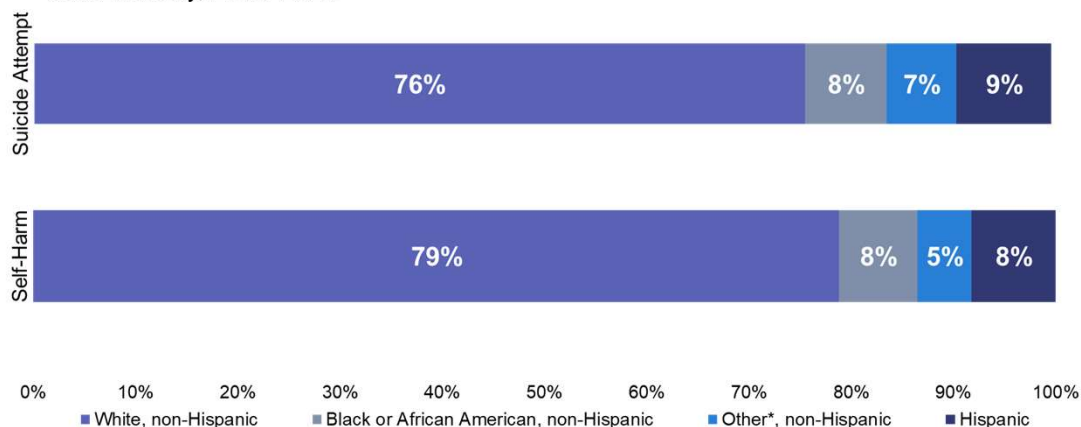
Data Source: Kansas Hospital Association Emergency Department Visits Database

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For both Suicide attempt and Self-harm; females made up a greater % of emergency department visits. The difference between males and females was greater for the self-harm group which had a 30% difference between two sexes compared to the 6% difference for suicide attempt.

Race/Ethnicity

Figure 5. Percent of Suicide and Self-Harm Emergency Department Visits by Race and Ethnicity, 2016-2020



Data Source: Kansas Hospital Association Emergency Department Visits Database

* Other = American Indian/Alaska Native, Asian and Pacific Islander, multiracial, and other

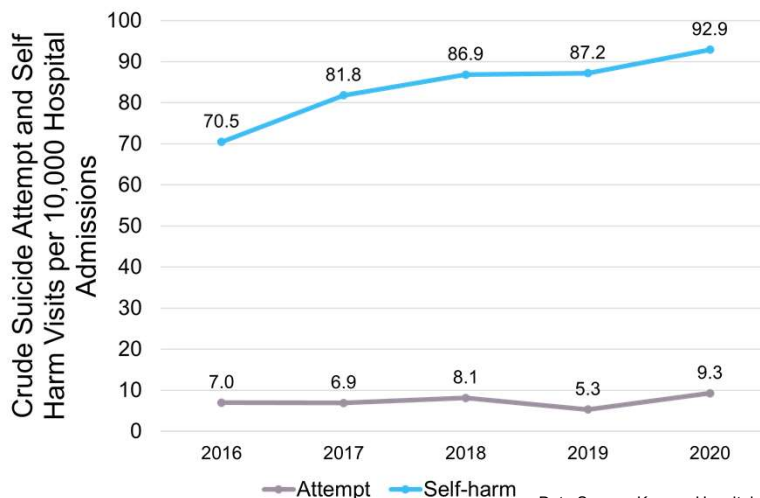
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Figure 5 shows the make up of ED visits for suicide attempt and self-harm by race and ethnicity. Across both self-harm and suicide attempt emergency department visits, white, non-Hispanic persons made up a majority of visits.

Morbidity - Hospitalizations

Trend

Figure 6. Hospitalization Rates (per 10,000 hospital admissions) for Self-Harm and Suicide Attempts, 2016-2020



Data Source: Kansas Hospital Association Hospital Admissions Database

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Figure 6 is looking at crude rates over time: the blue line at the top shows the trend for intentional self-harm. Over this time period, the rate has increased from 70.5 per 10,000 hospital admissions to 92.9 – a near 32% increase in hospitalizations. Unlike the emergency department visits, there was not a decrease for the year 2019.

The gray line at the bottom shows the rate for suicide attempts over this same period. 2019 did see a drop in hospitalizations at 5.3 per 10,000 hospitalizations from 8.1 the year before; but by 2020, we saw the highest rate for suicide attempt hospitalizations at 9.3.

Morbidity - Hospitalizations

Age

Figure 7. Hospitalization Rates for Suicide Attempts, 2016-2020

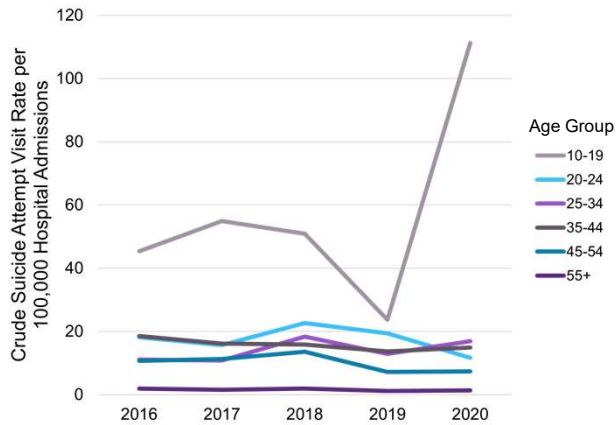
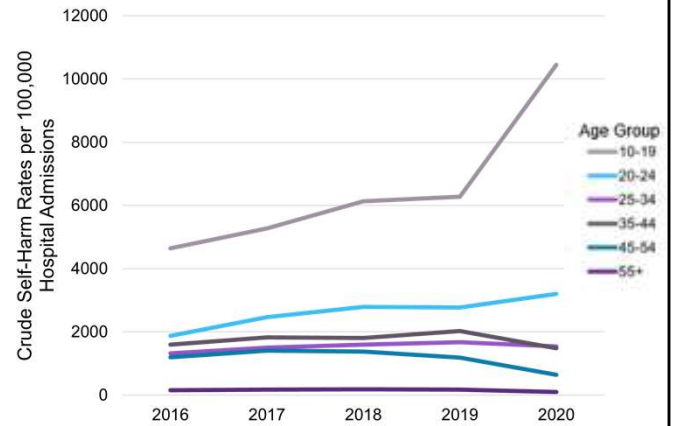


Figure 8. Hospitalization Rates for Self-Harm, 2016-2020



Data Source: Kansas Hospital Association Hospital Admissions Database

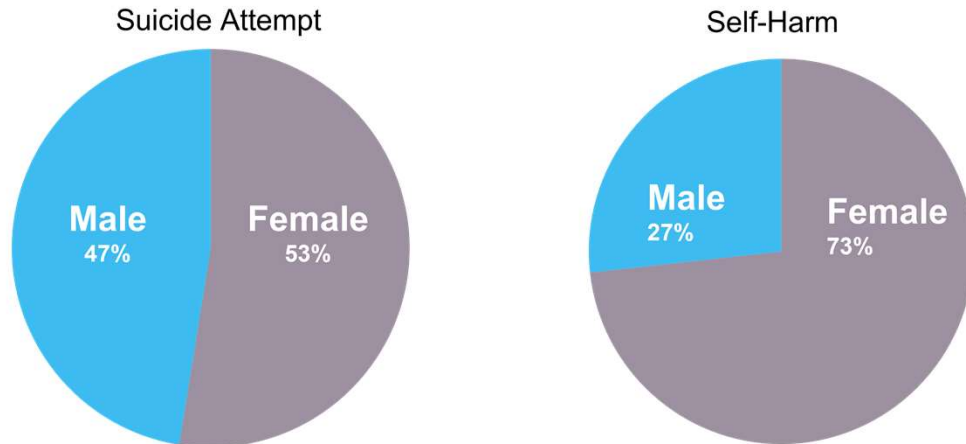
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Like the rates for emergency department visits, the rates for age group 10-19 years remains higher than the rest, with 55+ showing very low rates of suicide attempt and self-harm

Morbidity - Hospitalizations

Sex

Figure 9. Percent of Suicide and Self-Harm Hospital Admissions by Sex, 2016-2020



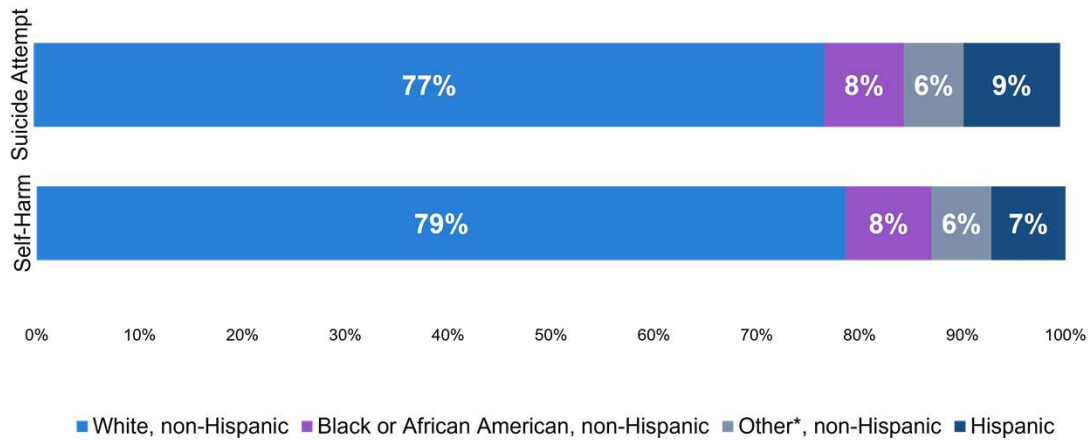
Data Source: Kansas Hospital Association Hospital Admissions Database

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Similar to ED visits, females made up more hospitalizations for both suicide attempt and self-harm, but this difference is more pronounced for self-harm with a 46% difference between males and females for self harm

Race/Ethnicity

Figure 10. Percent of Suicide and Self-Harm Hospital Admissions by Race and Ethnicity, 2016-2020



Data Source: Kansas Hospital Association Hospital Admissions Database

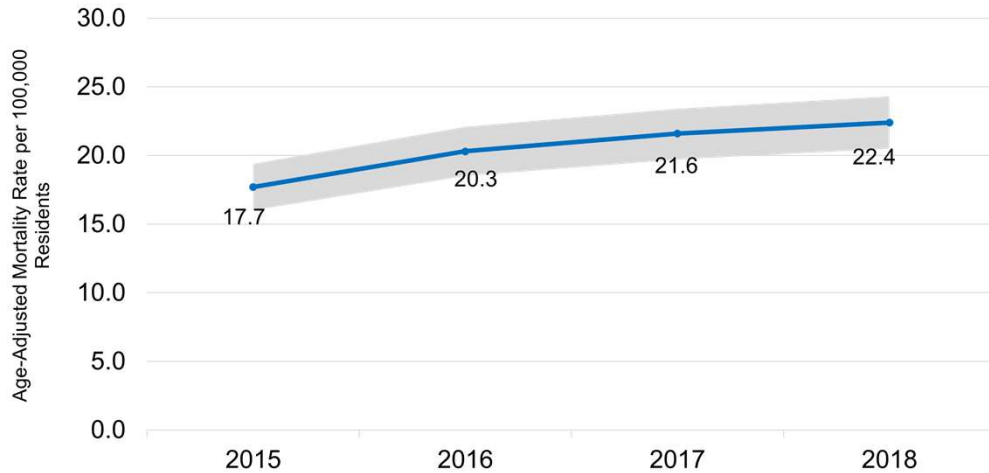
* Other = American Indian/Alaska Native, Asian and Pacific Islander, multiracial, and other

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Figure 10 shows the make up of hospital admissions for suicide attempt and self-harm by race and ethnicity. Again, non-Hispanic whites made up more hospitalizations for suicide attempt and self-harm

Trend

Figure 11. Age-Adjusted Suicide Mortality Rate by Year, 2015-2018



Data Source: Kansas Violent Death Reporting System

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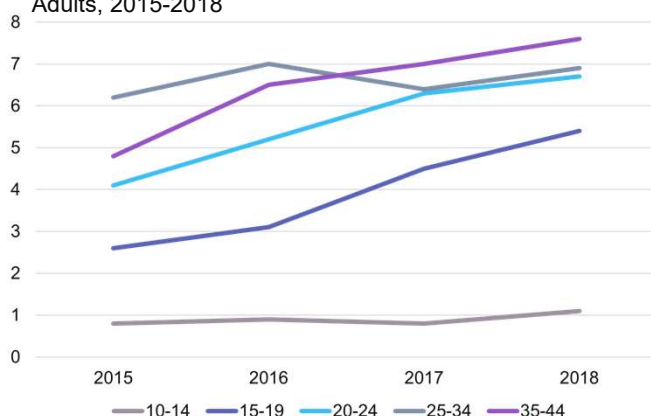
Blue line represents the age-adjusted suicide mortality rate over the years 2015-2018 with the exact points labeled.

The gray region corresponds to the 95% confidence interval of the age-adjusted rates

We see an increased rate from 17.7 per 100,000 residents to 22.4 by 2018.

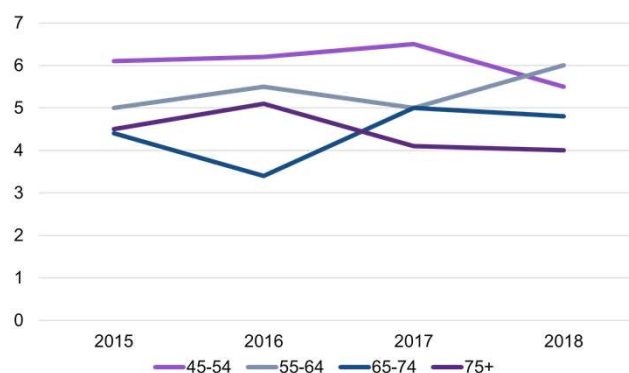
Age

Figure 12. Crude Suicide Mortality Rates per 100,000 Kansas Residents by Age Group and Year, Youth and Young Adults, 2015-2018



Data Source: Kansas Violent Death Reporting System

Figure 13. Crude Suicide Mortality Rates per 100,000 Kansas Residents by Age Group and Year, Middle-Aged and Older Adults, 2015-2018



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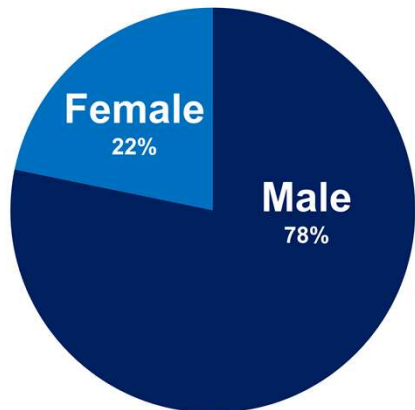
Figures 12 and 13 show the crude suicide mortality rates by age group over the years 2015 to 2018. Fig 12 on the left shows age groups for youth and young adults (ages 10-44). For all years, the age group 10-14 had the lowest rates. Age groups 15-19 (purple-ish blue), 20-24 (sky blue), and 35-44 (purple) all had increasing rates year over year.

It's worth noting that in 2017 and maintaining in 2018 the age group 35-44 had the highest rate of suicide.

Figure 13 shows the trends for those middle-aged and older (so 45 years and older by age group). All of these rates were more inclined to fluctuate over this period.

Sex

Figure 13. Percent of Suicide Deaths
by Sex, 2015-2018



Data Source: Kansas Violent Death Reporting System

Males had a
mortality rate that
is **3.6 x**
that of Females.

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While females made up more of the ED visits and hospitalizations, males made up more suicide deaths at 78% and males have a mortality rate that is 3.6 times that of females

Race/Ethnicity

Table 1. Percent of Suicide Deaths by Race and Ethnicity, 2015-2018

Race and Ethnicity	% of Suicide Deaths
White*	84
Black or African American*	4
American Indian/Alaska Native*	1
Asian/Pacific Islander*	2
Two or more races*	2
Hispanic	7

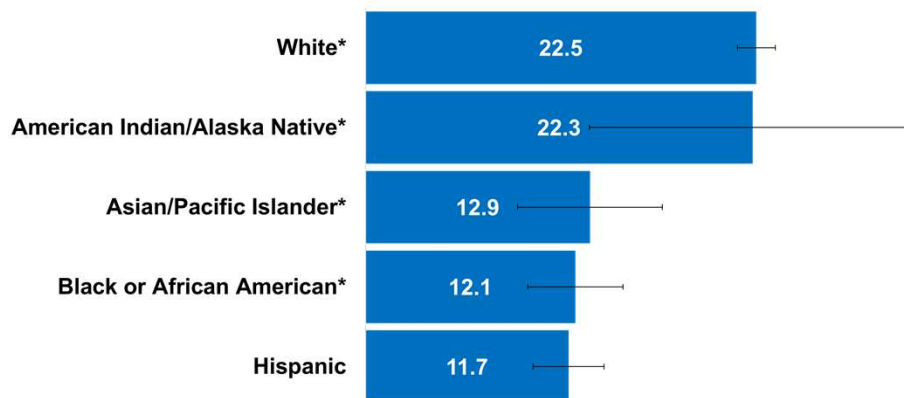
Data Source: Kansas Violent Death Reporting System

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Table 1 shows the percent of suicide deaths by race and ethnicity; White, non-Hispanic persons made up 84% of suicide deaths which is on par with that of hospitalizations and ED visits for attempts and intentional self-harm

Race/Ethnicity

Figure 14. Age-Adjusted Suicide Mortality Rates by Race and Ethnicity per 100,000 persons, 2015-2018



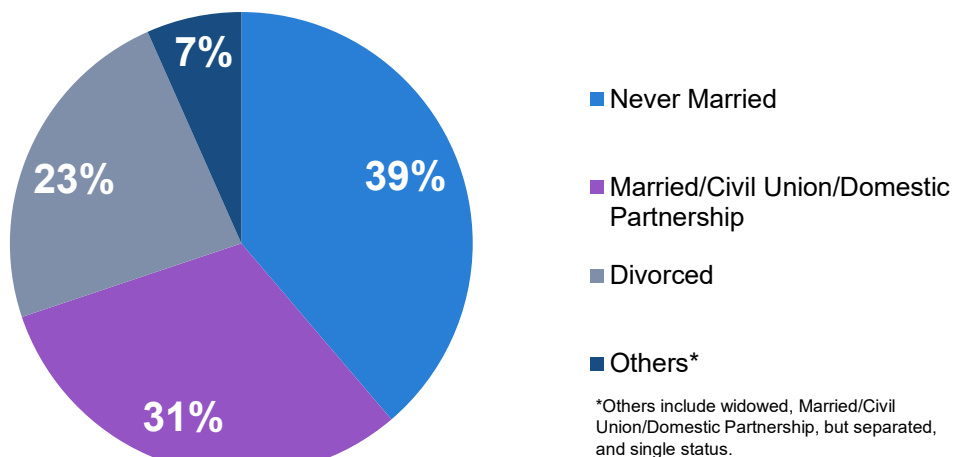
Data Source: Kansas Violent Death Reporting System
*=non-Hispanic

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In figure 14, we're looking at the age-adjusted mortality rates by race and ethnicity. The error bars signify 95% confidence intervals for the age-adjusted suicide mortality rates. White, non-Hispanics had the highest rate, closely followed by American Indian and Alaska Native (AIAN), but AIAN has the widest confidence interval due to low populations.

Marital Status

Figure 15. Percent of Suicide Deaths by Marital Status, 2015-2018



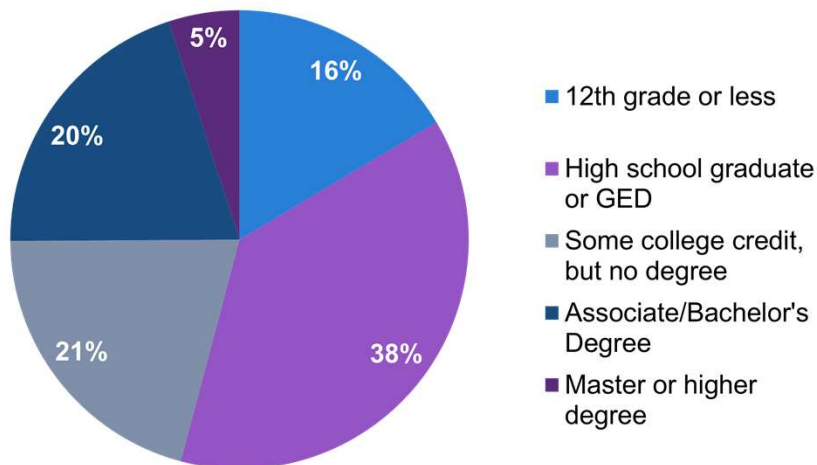
Data Source: Kansas Violent Death Reporting System

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Figure 15 shows the breakdown of suicide deaths by marital status. 31% of those who died by suicide were married, where 39% were never married and 23% were divorced.

Education Level

Figure 16. Percent of Suicide Deaths by Education Level, 2015-2018



Data Source: Kansas Violent Death Reporting System

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Fig 16 is looking at the education attainment level of those who died by suicide. 38% of suicide deaths occurred in those with a high school education and 16% had a 12th grade education or less. This equates to 54% having a high school education or less. 21% had some college credit, 20% had an associates or bachelor's degree, and only 5% had a masters or higher level of education.

Occupation



Among male workers, workers in **Farm/Forestry/Fishing** had highest suicide rate, 159.1 per 100,000 residents



Among female workers, workers in **Healthcare Support** had the highest suicide rate, 23.1 per 100,000 residents

Top Occupation Groups:



Construction/
Extraction 12.4%



Unpaid* 11.1%



Transportation/
Material Moving 9.8%

*Unpaid: housewife, homemaker, student, disabled, volunteer, patient, inmate, and those who did no work.

Data Source: Kansas Violent Death Reporting System

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Occupation – 16 years and older

Males in farm/forestry/fishing had the highest rate of suicide among male workers

Females in healthcare support had the highest rate of suicide among female workers.

The most commonly reported occupation groups for both males and females include construction and extraction, unpaid (which includes housewife, homemaker, student, inmate etc), and transportation/material moving.

Veteran



Veterans have a
suicide mortality rate
of

70.7

per 100,000 persons

This is **3.4 x** that of
non-veterans.

Data Source: Kansas Violent Death Reporting System

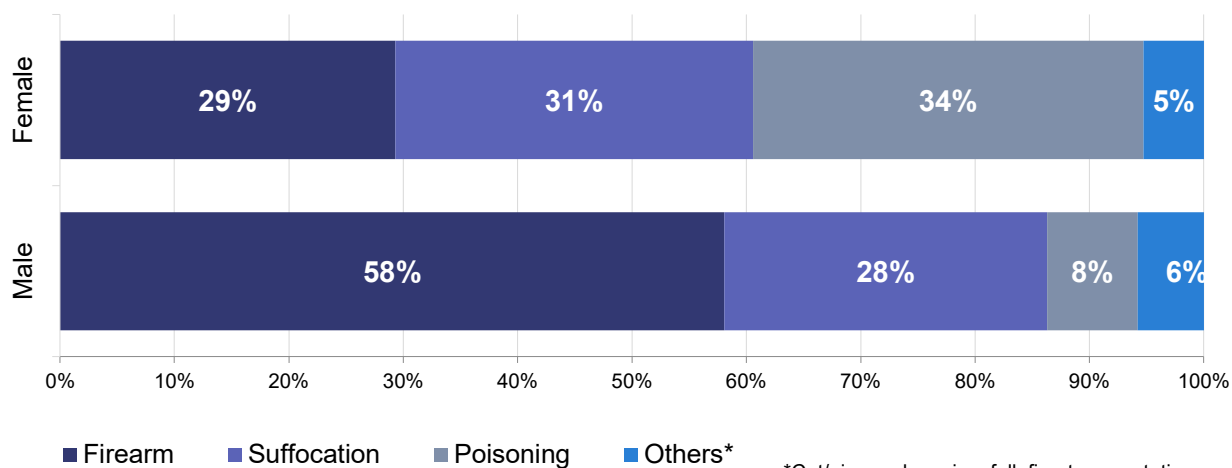
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Veteran analysis among population ≥ 18 years

Veterans have a suicide mortality rate of 70.7 per 100,000 persons which is about 3.4 times that of non-Veterans

Mechanism

Figure 17. Mechanism of Suicide Death, 2015-2018



Data Source: Kansas Violent Death Reporting System

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Figure 17 shows the difference in mechanism of suicide death between males and females. Males were more likely to use to firearm (58%) while females were more likely to use poisoning or drug overdose (34%) as their means of suicide followed by suffocation at 31%.

Geography

Figure 18. Age-Adjusted Suicide Rate by County
Population Density, 2015-2018

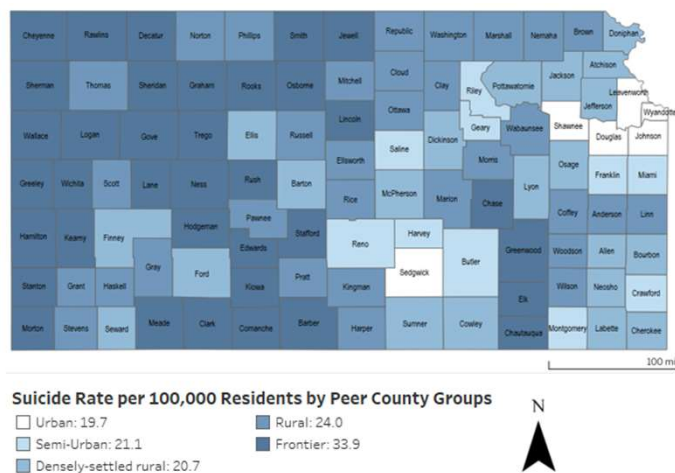


Table 2. Suicide Death Rate by Population Density, 2015-2018

Peer County Group ¹	Number of Deaths (N=2088)	Age-Adjusted Suicide Rate ² (95% CI)
Frontier	123	33.1 (26.8, 39.4)
Rural	193	25.0 (21.3, 28.7)
Densely-Settled Rural	321	20.7 (18.4, 23.0)
Semi-Urban	328	21.1 (18.8, 23.5)
Urban	1123	19.8 (18.6, 21.0)

¹Residence counties used for rate calculations. Peer counties grouped by persons per square mile: frontier <6.0, rural 6.0-19.9, densely-settled rural 20.0-39.9, semi-urban 40.0-149.9, and urban ≥150.0

²Per 100,000 Kansas Residents

Data Source: Kansas Violent Death Reporting System

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Figure 18 shows the counties by their suicide rate for the peer county groups which is based off of population density for that county. While urban counties (those with population density of 150 and more persons per square mile) had the highest number of deaths, the rate for Frontier counties (those with a population density less than 6 persons per square mile) had the highest rate at 33.1 per 100,000 residents.

Circumstances – Youth (10-17)

- 1 in 2 (48%) had a reported mental health problem
 - 3 in 4 (76%) listed depression or dysthymia
 - 16% had anxiety or ADHD
- 1 in 10 (13%) had a substance use problem
- 3 in 10 (28%) reported family problems
- 1 in 4 (26%) had a school problem
- 2 in 5 (43%) had a history of suicidal thoughts
- 2 in 5 (43%) left a suicide note
- 1 in 4 (26%) disclosed suicidal thoughts/intentions

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The next two slides will discuss the reported circumstances in two different age groups – youth (10-17 years of age) and adults (18 years and older) to highlight the differences in reported circumstances.

About half of the youth had a reported mental health problem with about 3 in 4 having depression or dysthymia.

1 in 10 had a non-alcohol substance use problem

3 in 10 had reported problems with their family

1 in 4 had a problem at school

2 in 5 had a history of suicidal thoughts or left a suicide note

And 1 in 4 had disclosed suicidal thoughts or intentions to someone

Circumstances – Adults (18 years+)

- 2 in 5 (42%) had a mental health problem
 - 3 in 4 (76%) listed depression or dysthymia
- 1 in 5 (23%) had an alcohol problem
- More than 3 in 10 (37%) had intimate partner problems
- 1 in 10 (10%) had a recent criminal legal problem
- 1 in 3 (30%) had left a suicide note
- 1 in 4 (27%) had disclosed their suicidal thoughts
- 3 in 10 (34%) of adults aged 25+ had a reported physical health problem

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About 2 in 5 or 40% had a mental health problem

3 in 4 also reported depression or dysthymia

1 in 5 had an alcohol problem

More than 30% had intimate partner problems

About 10% had recent criminal legal problems

1 in 3 left a suicide note

1 in 4 adults also disclosed their intentions to someone

34% of adults, specifically those aged 25 years and older, had a reported physical health problem

Summary

- ED/Hospitalizations
 - Females made up more ED visits and hospitalizations
 - 10–19-year-olds had the highest rates & saw increased rate in 2020
- Mortality
 - Increased rate year-over-year
 - Age group 35-44 had highest rate recently
 - Males made up more suicide deaths
 - Males in farm/forestry/fishing and females in healthcare support had higher rates than average
 - Veterans have a higher rate than non-Veterans
 - Circumstances differ between youth and adults
- Overall
 - White, non-Hispanic made up the majority of ED visits, hospitalizations, and suicide deaths

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References

1. Centers for Disease Control and Prevention (CDC). (2021). Facts About Suicide. Retrieved from: <https://www.cdc.gov/suicide/facts/index.html#:~:text=Suicide%20is%20death%20caused%20by,suicide%20or%20protect%20against%20it>
2. CDC. (2020). WISQARS: Fatal Injury Reports, National, Regional and State, 1981-2019. Retrieved from: <https://wisqars.cdc.gov/fatal-reports>
3. CDC. (2020). WISQARS: Leading Causes of Death Reports, 1981-2019. Retrieved from: <https://wisqars.cdc.gov/fatal-leading>
4. CDC. (2014). Data & Statistics (WISQARS): Cost of Injury Reports. Retrieved from: <https://wisqars.cdc.gov/cost/>

KDHE Resources

KSVDRS Website: <https://www.kdheks.gov/idp/KsVDRS.htm>

Zero Suicide Website: https://www.kdheks.gov/zero_suicide/

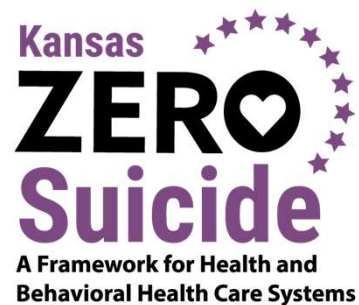
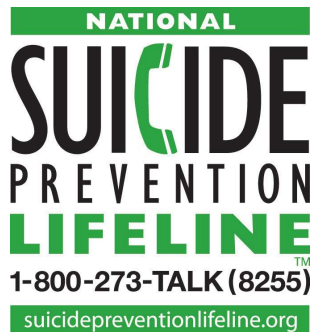
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References are listed here along with some resources from KDHE.



Thank you/Questions

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